Third West Weekly Report
Shepherd, Michael
to:
Joyce Ackerman, 'Craig Bamitz (cbamitz@utah.gov)'
04/25/2012 03:50 PM
Hide Details
From: "Shepherd, Michael" <Michael.Shepherd@rockymountainpower.net>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)'" <cbarnitz@utah.gov>

8 Attachments

Weekly Report 04-09 to 04-15-12.pdf Third West Weekly Log 2011-16.pdf 233895-1.pdf 233984-1.pdf 234064-1.pdf

234160-1.pdf 234312-1.pdf 234314-1.pdf

Joyce & Craig,

Attached are the reports for the week of April 16, 2012.

All air monitoring results came back negative, except one hit on Tuesday, April 17, 2012.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Sunday, April 15, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:50	Crew Stop Time:	16:45	Tot Hrs mns:	9:55
FCR Start Time:	6:41	FCR Stop Time:	16:45	Tot Hrs mns:	10:04

Use *military time* format ***00:00***

WEATHER CONDITIONS: Partly Cloudy/Cloudy - 40 degrees in AM, 55 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew laid out and dug for the south cable trench mn (E-W) and installed 106 feet of cable trench. CVE Electrical Crew piped in equipment to circuit breakers and CCVTs . CVE Line Crew installed ground rods and groundwire along the cable trench and started assembling the ground mats. Newman was not on site today. CVE Line Crew = 4, CVE Fab Crew = 4, CVE Electrical Crew = 3, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Earl McGlore 0641
Dispatcher logout, name and time:	Earl McGlore 1645

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this vet.
4/9 - Identifed an issue with mounting of the ground blades on 150A and 151A	Sent S/N to Pascor.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to detennine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will trv again. Actual depth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	Reported by:	Time:

Rocky Mountain Power

A division of PacifiCorp

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Monday, April 16, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	6:45	**Crew Stop Time:**	18:15	**Tot Hrs mns:**	11:30
FCR Start Time:	6:34	**FCR Stop Time:**	18:15	**Tot Hrs mns:**	11:41

Use military time format 00:00

WEATHER CONDITIONS: Partly Cloudy - 45 degrees in AM, 65 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew poured 20 cyds of FTB on top of the 138 kV duct bank and poured 70 cyds of 2000 psi concrete on the 138 kV duct bank in the 46 kV yard. CVE Electrical Crew ran conduits to equipment and electrical boxes and made up 8" radius elbows for the 138 kV duct bank. CVE Line Crew worked on ground mats. Newman excavated for the 138 kV duct bank in the 46 kV yard and tied conduits into the existing 138 kV conduits coming from Gadsby and Jordan. They excavated north from vaults #9 and #10, and placed conduits for same. Newman also spread ABC material in the 138 kV yard. I met with Soutwire and Wasatch to discuss their needs for when they start pulling wire on Thursday, April 19. RMP relay personnel are on site today. CVE Line Crew = 4, CVE Fab Crew = 4, CVE Electrical Crew = 3, Newman = 5, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Barry Nielson 0634
Dispatcher logout, name and time:	Al Swinski 1815

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this yet.
4/9 - Identifed an issue with mounting of the ground blades on 150A and 151A	Sent S/N to Pascor.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to detennine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	Reported by:	Time:

Rocky Mountain Power

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Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Tuesday, April 17, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:50	**Crew Stop Time:**	17:20	**Tot Hrs mns:**	10:30
FCR Start Time:	6:46	**FCR Stop Time:**	17:45	**Tot Hrs mns:**	10:59

Use military time format *00:00*

WEATHER CONDITIONS: Rainy and 50 degrees in AM, Sunny and 67 degrees in PM.

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew placed approximately 200 cyds of FTB over the west section of the 138 kV duct bank and assisted the electricians in pulling of control cable. CVE Electrical Crew worked on conduits to equipment in the yard, assembling yard lights, mobing cable to the site, and pulling control cable to the circuit breakers in the yard. CVE Line Crew stuck it out for a while and went home due to weather, around 9:00 AM. Newman excavated along the south fence for the 12 kV duct bank and installed conduits in same. . RMP relay and communications personnel are on site. Capital Electric electricians are on site today completing the communication battery system. CVE Line Crew = 4, CVE Fab Crew = 4, CVE Electrical Crew = 3, Newman = 5, Emerson = 1, Capital = 2, R&R = 1, Wlding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Bany Nielson 0634
Dispatcher logout, name and time:	Gus Montanez 1756

DISCREPANCIES:	**IMMEDIATE CORRECTIVE ACTION TAKEN:**
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this yet.
4/9 - identifed an issue with mounting of the ground blades on 150A and 151A	Sent S/N to Pascor.
11/30 - identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, tobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	**Reported by:**	**Time:**

Rocky Mountain Power

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Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Wednesday, April 18, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	6:50	**Crew Stop Time:**	19:00	**Tot Hrs mns:**	12:10
FCR Start Time:	6:37	**FCR Stop Time:**	19:03	**Tot Hrs mns:**	12:26

*Use military time format **00:00***

WEATHER CONDITIONS: Cloudy and 53 degrees in AM, 65 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew reinforced the duct banks running north and west from vaults #9 and #10 and placed FTB around and over the conduits. They added the final piece of cable trench to the south cable trench mn and modified some mitered pieces of cable trench to fit the new design for a truck crossing to run from the cable trench into the switchgear pullbox. CVE Electrical Crew pulled wire to equipment in the 138 kV yard . CVE Line Crew installed grounding in the oil containment pit, drove ground rods and dug grounding trenches . Newman prepped north road in the EZ for traffic, on Thursday and Friday, hauling dirt to Clean Harbors. They also placed ABC material to allow for FTB placement on conduits running west from vaults #9 and #10. Newman graded the roadway into the N-S tmck crossing and compacted around cable trenches and foundations with the small compactor. RMP relay and communications personnel are on site. KT Services was on site to prep for pulling innerduct and fiber into the substation tonight Acore Concrete Cutting was on site to modify the pull box and truck crossing trenches. KT Services and RMP Underground worked the night shift to pull innerduct and fiber into the control building. CVE Line Crew = 4, CVE Fab Crew = 4, CVE Electrical Crew = 3, Newman = 4, Emerson = 1, KT Services + 4, Acore = 1, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Jim Bowman 0637
Dispatcher logout, name and time:	Gus Montanez 1903

DISCREPANCIES:	**IMMEDIATE CORRECTIVE ACTION TAKEN:**
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this yet.
4/9 - identifed an issue with mounting of the ground blades on 150A and 151A	Sent S/N to Pascor.
11/30 - identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual deoth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	**Reported by:**	**Time:**

Rocky Mountain Power

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Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Thursday, April 19, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	6:50	**Crew Stop Time:**	18:05	**Tot Hrs mns:**	11:15
FCR Start Time:	6:35	**FCR Stop Time:**	18:15	**Tot Hrs mns:**	11:40

*Use military time format **00:00***

WEATHER CONDITIONS: Overcast/Rain, 53 degrees in AM - Sunny, 70 degrees in PM.

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew completed the installation of the newly added truck crossing at the switchgear pullbox. CVE Electrical Crew is pulling wire and terminating at the equipment. They also installed and backfilled the conduits from transformer #1 that have been re-routed to the cable trench on the south side of the transformer. CVE Line Crew installed the grounding grid in the oil containment pit for transforme #1, drove ground rods and tied to ground grid in the area south of transfonner #2 . Newman loaded out seven trucks in the AM and seven trucks in the PM for a total to date of 265 and are within 10' of terminating the south 12 kV duct run into the existing vault in the SW corner of the old 46 kV yard. Emerson moved from testing equipment in the switchgear to testing the 138 kV HVB breakers. RMP relay and communications personnel are on site. CVE Line Crew = 4, CVE Fab Crew = 4, CVE Electrical Crew = 3, Newman = 4, Emerson = 1, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Manny Luhaun 0635
Dispatcher logout, name and time:	Al Swinski 1819

DISCREPANCIES:	**IMMEDIATE CORRECTIVE ACTION TAKEN:**
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this yet.
4/9 - identifed an issue with mounting of the ground blades on 150A and 151A	Sent S/N to Pascor.
11/30 - identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	**Reported by:**	**Time:**

Rocky Mountain Power

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Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Friday, April 20, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	7:00	Crew Stop Time:	17:15	Tot Hrs mns:	10:15
FCR Start Time:	6:40	FCR Stop Time:	17:20	Tot Hrs mns:	10:40

Use *military time format 00:00*

WEATHER CONDITIONS: Partly Cloudy, 50 degrees in AM - Sunny, 70 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

i went to McClelland Sub three times today to inspect the work being performed on CVE's contract by Newman. There was a meeting on site with Chad Walter (Newman), Don Peterson (CVE), and Jeff Winter (RMP) to discuss changes to be made to the gate apron/approach, it's slope, and elevation. At Third West R&R set up four monitors. CVE Fab Crew was not on site today . CVE Electrical Crew terminated wires in the YTC cabinet in the control building and terminated wires in CB 144. CVE Line Crew worked on grounding after completing some training at the CVE office. Newman loaded out six trucks in the AM and six trucks in the PM for a total to date of 277, backfilled over the conduits running north and west from vaults #9 and #10, completed the conduits for the 12 kV duct bank running to the existing SW vault, and swept up the area just outside the east gate in the parking lot. RMP relay and communications personnel are on site. CVE Line Crew = 7, CVE Fab Crew = 0, CVE Electrical Crew = 2, Newman = 5, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Manny Luhaun 0653
Dispatcher logout, name and time:	Didn't call - whoops

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this vet.
4/9 - Identifed an issue with mounting of the ground blades on 150A and 151A	Received modified brackets from PASCOR
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual deoth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	Reported by:	Time:

Rocky Mountain Power

A division of PacifiCorp

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Saturday, April 21, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	7:00	**Crew Stop Time:**	17:25	**Tot Hrs mns:**	10:25
FCR Start Time:	6:50	**FCR Stop Time:**	17:33	**Tot Hrs mns:**	10:43

Use *military time format 00:00*

WEATHER CONDITIONS: Sunny, 55 degrees in AM - 80 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Fab Crew was not on site today . CVE Electrical Crew terminated cables at the circuit breakers and pulled control and AC cables to transfonner #1 . CVE Une Crew completed the oil containment grounding for transformer #1, placed grounding in the 138 kv yard and stood the columns for the 12 kV support stmctures between transformer #1 and the switchgear. They also worked on the 138 kV ground switches where it was identified that the control pipe provided by PASCOR is 3' too short. Nevrman excavated for the "N" foundations and the 12 kV capacitor circuits between transfonner #2 and the switchgear. The also backfilled the duct bank running north from vaults #9 and #10. Wilding was not on site today. CVE Line Crew = 5, CVE Fab Crew = 0, CVE Electrical Crew = 4, Newman = 4, R&R = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Blake Spence 0650
Dispatcher logout, name and time:	Blake Spence 1733

DISCREPANCIES:	**IMMEDIATE CORRECTIVE ACTION TAKEN:**
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this vet.
4/9 - identifed an issue with mounting of the ground blades on 150A and 151A	Received modified brackets from PASCOR
4/21 - identified a dimension issue on the PASCOR ground switch control ann. (22' vs 25')	Sent e-mail to Roger F/ Mike Shepherd
11/30 - identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to detennine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	**Reported by:**	**Time:**

Rocky Mountain Power

A division of PacifiCorp

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Sunday, April 22, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	6:55	**Crew Stop Time:**	15:30	**Tot Hrs mns:**	8:35
FCR Start Time:	6:35	**FCR Stop Time:**	15:40	**Tot Hrs mns:**	9:05

*Use military time format **00:00***

WEATHER CONDITIONS: Sunny, 55 degrees in **AM** - 85 degrees in **PM**

DESCRIPTION: (work performed, general comments, Instructions to contractor, # of crew members onsite.)

R&R was not on site today. CVE Fab Crew was not on site today . CVE Electrical Crew pulled cables from the transfonner to the switchgear and wired up the CCVT's for the Gadsby line . CVE Line Crew Installed grounding around vaults #9 and #10 and Installed piping for ground switch 150 G. Newman was not on site today. Wilding was not on site today. Emerson timed/tested CB 132 and CB 144 and worked in the switchgear testing the breakers, completing the west half of the switchgear CVE Line Crew = 5, CVE Fab Crew = 0, CVE Electrical Crew = 4, Newman = 0, Emerson = 3.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Blake Spence 0635
Dispatcher logout, name and time:	Blake Spence 1540

DISCREPANCIES:	**IMMEDIATE CORRECTIVE ACTION TAKEN:**
3/23 - Still waiting for the second CT terminal block from Hyundai	Confirmed with Ken Foster on 3/22 that RMP has not received this vet.
4/9 - Identifed an issue with mounting of the ground blades on 150A and 151A	Received modified brackets from PASCOR
4/21 - Identified a dimension issue on the PASCOR ground switch control arm. (22' vs 25')	Sent e-mail to Roger F/ Mike Shepherd
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Removed wall when excavating for the 12 and 138 kV duct banks
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual deoth will be much deeoer than design of new	Found the conduits under the wall and transitioned to depths specified for 138 kV duct banks

DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex , water truck, compactor, backhoe.

OSHA Recordable Safety Incidents:	**Reported by:**	**Time:**

Rocky Mountain Power

A division of PacifiCorp

Russ Johnson
Field Construction Representative

REI LAB Reservoirs Environmental, Inc.

April 18, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 233895-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233895-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 233895-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 17, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 18, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm^2)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm^2)
3W-041612 W	EM 877333	0.0800	1054	ND	0.0046	BAS	BAS
3W-041612 N	EM 877334	0.0000	1054	NA	Sample Rejected - No Filter in Cassette		
3W-041612 E	EM 877335	0.0800	1054	ND	0.0046	BAS	BAS
3W-041612 S	EM 877336	0.0800	1054	ND	0.0046	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally signed by Gina Veltrano
Date: 2012.04.18 10:29:06 -05'00'

DATA QA

RES 233895

Due Date: 4-18-12
Due Time: 835a

Reservoirs Environmental, Inc.

REI LAB

5801 Logan St Denver, CO 80216 • Ph: 303 864-1986 • Fax 303-477-4275 • Toll Free 866 RESI-ENV
Pager : 303-508-2098

Page 1 of 1

INVOICE TO: (IF DIFFERENT)

Company: R & R Environmental	Company:
Address: 47 W 9000S #2 Sandy, UT. 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub - RNP	

CONTACT INFORMATION:

Contact: Dave Roskelley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager: 801 541-1035	Cell/pager:
Final Data Deliverable Email Address: dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day
Organics ___ 24 hr. ___ 3 day ___5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___S Day ___S Day

turnaround times establish a laberstory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W041612W		X																1,054	A		4/16/12		577333
2 3W-041612N		↓																1,054	↓				34
3 3W-041612E																		1,054					35
4 3W-041612S																		1,054					36
5																							
6																							
7																							
8																							
9																							
10																							

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

4 Fed Ex

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex Date/Time: 4/16/12

Laboratory Use Only
Received By: [signature] Date/Time: 4/17/12 @ 835 Carrier: Fedex

Sample Condition: On Ice Yes / No Sealed Yes / No Intact (Yes) / No
Temp. (F°) ____

Results: Contact Phone Email Fax Date Time Initials | Contact Phone Email Fax Date 4/17/12 Time 1023 Initials

Contact Phone Email Fax Date Time Initials | Contact Phone Email Fax Date Time Initials

7-2011_version 1

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

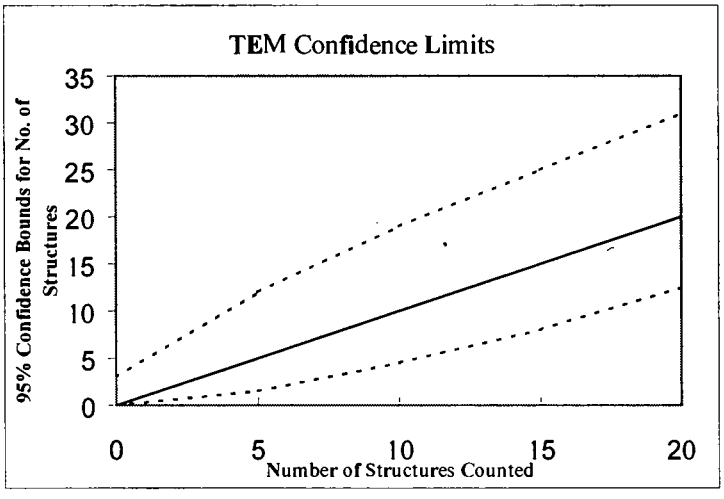
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RaR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1054
Date received by lab	4/17/12
Lab Job Number:	233895
Lab Sample Number:	877333

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	4/18/12
Method (D=Direct, I=Indirect IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F5-4	ND												
	E5-4	ND												
	C5-4	ND		Prep A: 90% intact				5-7% debris						
	B5-4	ND		Prep B: 75% intact				5-7% debris						
B	K4-3	ND												
	H4-3	ND												
	G4-3	ND												
	F4-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RaR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1054
Date received by lab	4/17/12
Lab Job Number:	233895
Lab Sample Number:	877334

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	4/18/12
Method (D=Direct, I=Indirect, 1A=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Stmctures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
			Sample rejected - no filter in cassette											

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R&R
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1054
Date received by lab	4/17/12
Lab Job Number:	233895
Lab Sample Number:	877335

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Stmctures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphiboie	C	NAM		Sketch	Photo	EDS
A	G6-1	ND												
	F6-1	ND												
	E6-1	ND		Prep A:		80%	intact	15% debris						
	L6-1	ND		Prep B:		60%	intact	15% debris						
B	E3-3	ND												
	C3-3	ND												
	C4-6	ND												
	B4-6	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, 1nc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RaR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1054
Date received by lab	4/17/12
Lab Job Number:	233895
Lab Sample Number:	877336

F-Factor Calculation (Indirect Preps Only):

Fraction cf primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Stmctures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-4	ND												
	G5-4	ND												
	F5-4	ND												
	E5-4	ND												
B	G4-4	ND												
	F4-4	ND												
	E4-4	ND												
	C4-4	ND												

Prep A: 90% intact 5% debris
Prep B ~ Prep A

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

REI LAB Reservoirs Environmentol, Inc.

April 19, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 233984-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233984-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 233984-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 18, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 18, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-041712 W	EM 877528	0.0900	930	ND	0.0046	BAS	BAS
3W-041712 N	EM 877529	0.0900	932	ND	0.0046	BAS	BAS
3W-041712 E	EM 877530	0.0900	932	1	0.0046	0.0046	11.1
3W-041712 S	EM 877531	0.0900	930	ND	0.0046	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally signed by Elaine Eberman
DN: CN = Elaine Eberman, C = US, O = Reservoirs Environmental Inc
Date: 2012.04.19 10:03:31 -04'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 233984-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 18, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 18, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-041712 W	EM 877528	ND	0	0	0	0	0	0	0
3W-041712 N	EM 877529	ND	0	0	0	0	0	0	0
3W-041712 E	EM 877530	Chrysotile	1	0	0	0	0	0	1
3W-041712 S	EM 877531	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

RES 233984

Due Date: 4/19/12
Due Time: 9:15a

Reservoirs Environmental, Inc.

9601 Logan St. Denver, CO 80216 • Ph: 303 964-1966 • Fax 303-477-4275 • Toll Free :866 RESI-ENV
Pager : 303-509-2098

Page 1 of 1

INVOICE TO: (IF DIFFERENT)

Company: R & R Environmental	Company:
Address: 47 W 9080 S #2 Sandy Ut. 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub - RAMP	

CONTACT INFORMATION:

Contact: Dave Roskelley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager: 801 541-1735	Cell/pager
Final Data Deliverable Email Address: dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day
RCRA S / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day
Organics ___ 24 hr. ___ S day ___S Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Qbant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICRDBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-041712W		X															930	A		4/17/12		877528
2 3W-041712N		↓															932	↓		↓		29
3 3W-041712E																	932					30
4 3W-041712S																	930					31
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Justin Kruger Fed Ex Date/Time: 4/17/12

Laboratory Use Only
Received By: Date/Time: 4/18/12 @ 9:15 Carrier: Fedex

Sample Condition: On Ice: Yes / No; Sealed: Yas / No; Intact: Yes / No
Temp. (F°) ____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

Phone #: 7982 8942 9169

7-2011_version 1

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
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Cr = Crocidolite	M = Matrix
T = Tremolite	

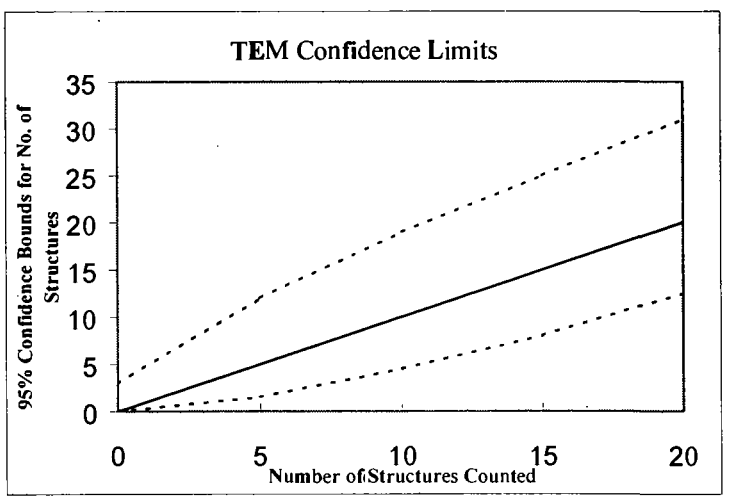
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Resorvoirs Environmental, Inc.
TEM Asbestos Strueture Count

Laboratory name:	REI
fnstrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) i0KX
Grid ooening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	950
Date received by lab	4/18/12
Lab Job Number:	233984
Lab Sample Number:	877528

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	MK
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-6	ND												
	G4-6	ND												
	F4-6	ND			Prep A		90% intact ~5% debris							
	E4-6	ND			Prep B	NA		Tremolite	4/18/12					
	C4-6	ND												
B	K5-4	ND												
	H5-4	ND												
	G5-4	ND												
	F5-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby lype) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	932
Date received by lab	4/18/12
Lab Job Number:	233984
Lab Sample Number:	877529

F-Factor Calculation (Indirect Preps Only):

Fraction of primery filtsr used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JK
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	G5-6	ND												
	F5-6	ND												
	E5-6	ND			Prep # 502 intact 5%. debris									
	C5-6	ND			Prep B 502 intact 5%. debris						JK 4/18/12			
	B5-6	ND												
B	G6-1	ND												
	F6-1	ND												
	E6-1	ND												
	C6-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	932
Date received by lab	4/18/12
Lab Job Number:	233984
Lab Sample Number:	877530

Analyzed by	[illegible]
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	G5-4	ND												
	F5-4	ND			Prep A 90% intact 5% debris									
	E5-4	ND			Prep B ~ 80% intact 5% debris [illegible] 4/18/12									
	C5-4	ND												
	B5-4	ND												
B	K5-1	ND												
	H5-1	ND												
	G5-1	ND												
	F4-6	F		1	3.5	1	CD		—		\			

LA = Libby-type amphibole   OA = Other (non-Libby type) amphibole   C = Chrysotile   NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	930
Date received by lab	4/18/12
Lab Job Number:	233984
Lab Sample Number:	877531

F-Factor Calculation (Indirect Preps Only):

Fractkm of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	CC
Analysis date	4/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Stmctures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	FH-1	ND												
	GH-1	ND												
	CH-1	ND					Prep A 90% intact 5% debris						4/18/12	
	FG-1	ND					Prep B							
	EG-1	ND												
B	KS-3	ND												
	HS-3	ND												
	GS-3	ND												
	FS-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Anaiyzed, mm}^2 = \#\text{ GO counted x Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening

REI LAB Reservoirs Environmental, Inc.

April 20, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 234064-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234064-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 234064-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 19, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 20, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm^2)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm^2)
3W-041812 W	EM 877764	0.0900	913	ND	0.0047	BAS	BAS
3W-041812 N	EM 877765	0.0900	913	ND	0.0047	BAS	BAS
3W-041812 E	EM 877766	0.0900	913	ND	0.0047	BAS	BAS
3W-041812 S	EM 877767	0.0900	916	ND	0.0047	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

AC Digitally signed by Elaine Eilerman DN: CN = Elaine Eilerman, C = US, O = Reservoirs Environmental, Inc Date: 2012.04.20 10:08:35 -07'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 234064-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Oate Samples Received:	April 19, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 20, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-041812 W	EM 877764	ND	0	0	0	0	0	0	0
3W-041812 N	EM 877765	ND	0	0	0	0	0	0	0
3W-041812 E	EM 877766	ND	0	0	0	0	0	0	0
3W-041812 S	EM 877767	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 4/20/12
Due Time: 8AM

RES 234064

Reservoirs Environmental, Inc.

5801 Ledger St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free 888 RESI-ENV
Pager: 303-509-2096

Page 1 of 1

INVOICE TO: (IF DIFFERENT)

Company:	R&R Environmental
Address:	47 W 9000S #2
	Sandy UT. 84070
Company:	
Address:	

CONTACT INFORMATION:

Contact:	Dave Roskelley
Phone:	
Fax:	
Cell/pager:	801 541-1035
Final Data Deliverable Email Address:	dave@rremipo.com
Contact:	
Phone:	
Fax:	
Cell/pager:	

Project Number and/or P.O. #:

Project Description/Location: 3rd West Sub - RMP

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM (TEM) ___ RUSH (Same Day) (PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals S Welding Fumo Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 46 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

	Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1	3W-041812W		X																913	A		4/18/12		377764
2	3W-041812N		↓																913	↓		↓		65
3	3W-041812E																		913					66
4	3W-041812S																		916					67
5																							
6																							
7																							
8																							
9																							
10																							

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Fed Ex Date/Time: 4/18/12

Laboratory Use Only
Received By: Date/Time: 4/19/12 8AM Carrier: FedEx

Sample Condition: On Ice: Yes / No — Sealed: Yes / No — Intact: (Yes) / No
Temp. (F°) ____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

Shipping #: 7934 6267 6572

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

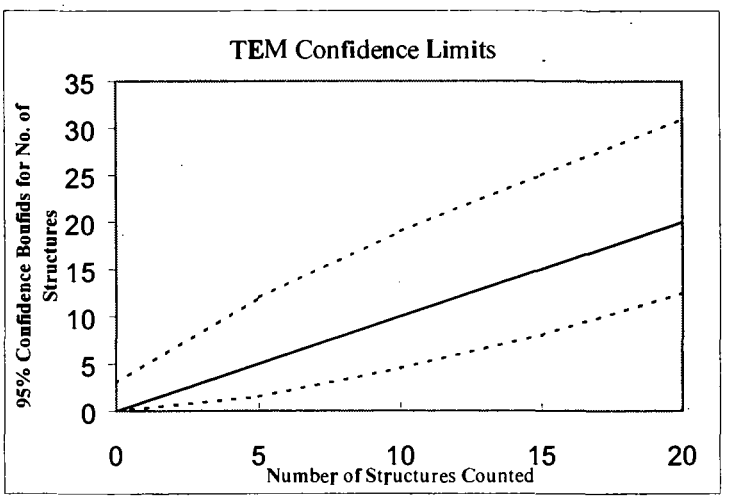
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	913
Date received by lab	4/19/12
Lab Job Number:	234064
Lab Sample Number:	877764

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L3-1	ND												
	K3-1	ND												
	H3-1	ND			Pmp		A+B	~70% structure			5% debris			
	G3-1	ND												
	K4-4	ND					B	4/20/12						
B	K3-1	ND												
	H3-1	ND												
	G3-1	ND												
	E3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
***TEM* Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltaoe (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	913
Date received by lab	4/19/12
Lab Job Number:	234064
Lab Sample Number:	877765

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G2-3	ND												
	F2-3	ND												
	E2-3	ND			Preps A+B ~80% intact 5% debris									
	C2-3	ND												
	B3-1	ND						JB 4/20/12						
B	H3-4	ND												
	G3-4	ND												
	F3-4	ND												
	E3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	913
Date received by lab	4/19/12
Lab Job Number:	234064
Lab Sample Number:	8777

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures: Primary	No. of Structures: Total	Dimensions: Length	Dimensions: Width	Identification	Mineral Class: Amphibole	Mineral Class: C	Mineral Class: NAM	Sketch/Comments	Sketch (1 = yes, blank = no)	Photo	EDS
A	H2-1	ND												
	G2-1	ND												
	F2-1	ND			Prep A+B			~70% intact			5-7% debris			
	E2-1	ND												
	F3-4	ND						JB 4/20/12						
B	H3-1	ND												
	G3-1	ND												
	F3-4	ND												
	E3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Envtronmental, inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	916
Date received by lab	4/19/12
Lab Job Number:	234064
Lab Sample Number:	877767

F-Factor Calculation (Indirect Praps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F2-3	ND												
	E2-3	ND			Pump A		60%	Chrysotile		5%	debris			
	G3-1	ND			Pump B		60%	Chrysotile		5%	debris			
	F3-1	ND												
	F3-3	ND						JB 4/20/12						
B	F3-1	ND												
	E3-1	ND												
	C3-1	ND												
	B3-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confinnation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

Reservoirs Environmentol, Inc.

April 23, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 234160-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed In general accordance with the appropriate methodology as stated In the attached analysis table. The results have been submitted to your office.

RES 234160-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 234160-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 20, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 20, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-041912 W	EM 877963	0.0800	968	ND	0.0050	BAS	BAS
3W-041912 N	EM 877964	0.0800	968	ND	0.0050	BAS	BAS
3W-041912 E	EM 877965	0.0800	968	ND	0.0050	BAS	BAS
3W-041912 S	EM 877966	0.0800	966	ND	0.0050	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally signed by Elisha Ellerman
DN: CN = Elisha Ellerman, C = US, O = Reservoirs Environmental, Inc.
Date: 2012.04.23 10:21:34 -06'00'

DATA QA

RES 234160

Due Date: 4-21-12
Due Time: 850a

Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free 866 RESI-ENV
Pager: 303-590-2896

Page 1 of 1

INVOICE TO: (IF DIFFERENT) — CONTACT INFORMATION:

Company: RSR Environmental	Company:	Contact: Dave Roskelley	Contact:
Address: 47 W 9000 S. #2	Address:	Phone:	Phone:
Sandy, Ut 84070		Fax:	Fax:
		Cell/pager: 801 541-1035	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: 3rd West Sub-Roof		dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEH = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 5 day ___ 5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS / VALID MATRIX CODES / LAB NOTES:

Air = A; Bulk = B; Dust = D; Paint = P; Soil = S; Wipe = W; Swab = SW; F = Food; Drinking Water = DW; Waste Water = WW; O = Other
ASTM E1792 approved wipe media only

#	Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1	3W-041912W		X															968	A		4/19/12		877963
2	3W-041912N		↓															968	↓		↓		64
3	3W-041912E		↓															968	↓		↓		65
4	3W-041912S		↓															966	↓		↓		↓ 66
5																							
6																							
7																							
8																							
9																							
10																							

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex	Date/Time: 4/19/12	Sample Condition: On Ice / Sealed / Intact	
Laboratory Use Only Received By: [signature]	Date/Time: 42012 @ 850a Carrier: FedEx	Temp. (F°) ___ Yes / No, Yes / No, (Yes) / No	

Results:						
Contact Dave	(Phone) Email Fax	Date 4/21	Time 9:10a	Initials	Contact	Phone (Email) Fax Date Time Initials
Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email Fax Date Time Initials

Tracking # 7934 6968 8148

Reservoirs Environmentol, Inc.

April 24, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 234312-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234312-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

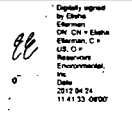
TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 234312-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 23, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 23, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm^2)	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm^2)
3W-042012 W	EM 878210	0.0900	916	ND	0.0047	BAS	BAS
3W-042012 N	EM 878211	0.0900	916	ND	0.0047	BAS	BAS
3W-042012 E	EM 878212	0.0900	884	ND	0.0048	BAS	BAS
3W-042012 S	EM 878213	NA	3.6	NA	Rejected Due To Failed Pump		

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm



DATA QA

Due Date: 4-24-12
Due Time: 10a

RES 234312

Reservnirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 - Ph: 303 964-1925 - Fax 303-477-4275 - Toll Free: 888 RESI-ENV
Pager: 303-609-2698

INVOICE TO: (IF DIFFERENT)

Company: R&R Environmental	Company:
Address: 47 W 9000S #2	Address:
Sandy UT. 84070	
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub - RNAP	

CONTACT INFORMATION:

Contact:	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager:	Cell/pager:
Final Data Deliverable Email Address:	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM / (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day
Organics ___ 24 hr. ___ 3 day ___5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for after hours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-042012W		X																916	A		4/20/12		87820
2 3W-042012N		↓																916	↓				11
3 3W-042012E																		884					12
4 3W-042012S - Faulted Pump																		3.6					13
5																							
6																							
7																							
8																							
9																							
10																							

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex Date/Time: 4/20/12

Laboratory Use Only
Received By: [signature] Date/Time: 4.23.12 10a Carrier: FedEx

Sample Condition: On Ice Yes / No Sealed Yes / No Intact (Yes) / No
Temp. (F°) ____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

7083 1144 5757

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

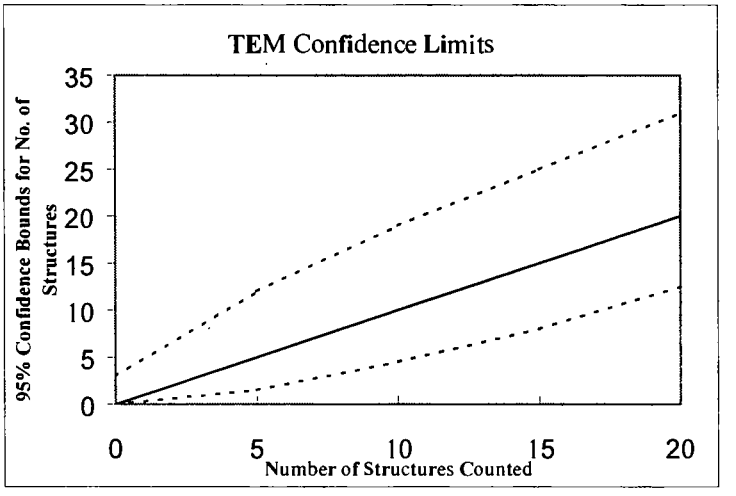
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	916
Date received by lab	4/23/12
Lab Job Number:	234312
Lab Sample Number:	878210

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	[illegible]
Analysis date	4/23/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures: Primary	No. of Structures: Total	Dimensions: Length	Dimensions: Width	Identification	Mineral Class: Amphibole	C	NAM	Sketch/Comments	Sketch	Photo	EDS
												1 = yes, blank = no		
A	F2-3	ND												
	E2-6	ND												
	E3-3	ND				Prep A ~ [illegible] intact 5-10% debris								
	C4-6	ND				Prep B [illegible]		[illegible] 4/23/12						
	F6-1	ND												
B	H4-3	ND												
	G4-1	ND												
	E4-4	ND												
	B4-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	RE1
Instrument	JEOL 100 CX N VS
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	365
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	916
Date received by lab	4/23/12
Lab Job Number:	234312
Lab Sample Number:	87821

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	
Analysis date	4/23/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G3-6	ND			Prep A	60	Mixed		5-10%	debris				
	G4-1	ND			Prep B	or A	Tremolite		4/12	3/12				
	F2-6	ND												
	F2-4	ND												
B	K4-4	ND												
	H4-4	ND												
	H3-1	ND												
	G3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysolile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.050 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	884
Date received by lab	4/23/12
Lab Job Number:	234312
Lab Sample Number:	878212

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	MC
Analysis date	4/23/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-6	ND												
	G5-6	ND				Prep	A	7%	mtact	5-10%	clusters			
	K4-3	ND				Prep	B	~A			4/23/12			
	H4-2	ND												
	G4-3	ND												
B	G5-4	ND												
	F5-4	ND												
	E5-4	ND												
	G6-4	ND												
	F6-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

File: Shared on server T/Offfonns.sg/AHERA Procedures
Revised: 02/27/02

REI LAB Reservoirs Environmentol, Inc.

April 24, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 234314-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

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Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 234314-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	April 23, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	April 24, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-042112 W	EM 878214	0.1000	720	ND	0.0053	BAS	BAS
3W-042112 N	EM 878215	0.1000	720	ND	0.0053	BAS	BAS
3W-042112 E	EM 878216	0.1000	720	NO	0.0053	BAS	BAS
3W-042112 S	EM 878217	0.1000	720	ND	0.0053	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

DATA QA

RES 234314

Due Date: 4·24·12
Due Time: 10a

Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1846 • Fax 303-477-4275 • Toll Free 866 RESI-ENV
Pager : 303-589-2094

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INVOICE TO: (IF DIFFERENT)

Company: RER Environmental	Company:
Address: 47 W 9000S #2 Sandy UT 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub-6 RMP	

CONTACT INFORMATION:

Contact: Dave Rerkeiley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager: 801 541-1035	Cell/pager:
Final Data Deliverable Email Address: dave@rerenv.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / TEM ___ RUSH (Same Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Prep	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-042112W		X															720	A		4/21/12		8782111
2 3W-042112N		↓															720	↓		↓		15
3 3W-042112E																	720					16
4 3W-042112S																	720					17
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: RE! will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company repr's entative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex Date/Time: 4/21/12

Laboratory Use Only
Received By: [signature] Date/Time: 4·23·12 10a Carrier: FedEx

Sample Condition: On Ice Yes / No Sealed Yes / No Intact (Yes) / No
Temp. (F°) ____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

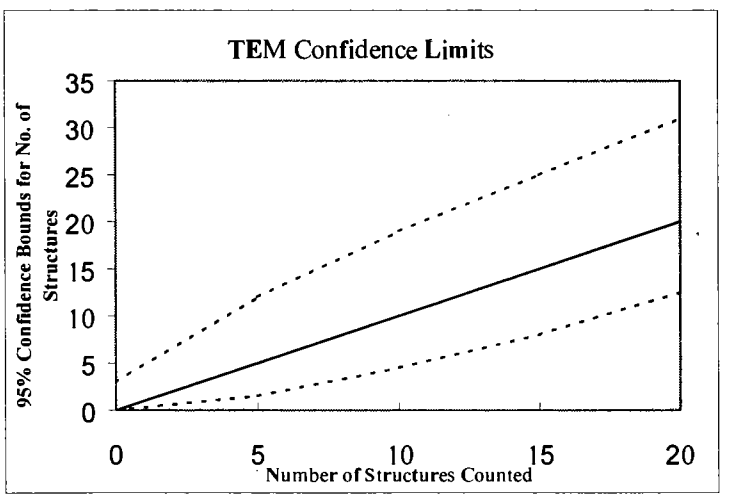
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mn12)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	720
Dale received by lab	4/23/12
Lab Job Number:	234314
Lab Sample Number:	878214

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/24/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structura Type	No. of Structures		Dimensions		identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-1	ND												
	H3-4	ND					Prep A	~60%	Chrysotile	5% debris				
	H3-1	ND					Prep B	80%	Chrysotile	5% debris				
	G3-4	ND												
	G3-1	ND						JB 4/24/12						
B	G2-6	ND												
	G2-3	ND												
	F2-6	ND												
	F2-3	ND												
	E3-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	RE1
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RJR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	720
Date received by lab	4/23/12
Lab Job Number:	234314
Lab Sample Number:	878215

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/24/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-4	ND												
	G3-1	ND												
	F3-4	ND			Pump A		60% int			5%-7% debris				
	F3-1	ND			Pump B		80% int			5-7% debris				
	E3-4	ND												
B	K3-4	ND								4/24/12				
	H3-4	ND												
	G3-4	ND												
	F3-4	ND												
	E3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
***TEM* Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filtar Area (mm2)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	720
Date received by lab	4/23/12
Lab Job Number:	234314
Lab Sample Number:	878216

F-Factor Calculation (Indirect Praps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/24/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures: Primary	Total	Dimensions: Length	Width	Identification	Mineral Class: Amphibole	C	NAM	Sketch/Comments	1 = yes, blank = no: Sketch	Photo	EDS
A	L4-4	ND												
	K4-4	ND												
	H4-4	ND			Prep A & B ~60% intact 20-25% debris									
	G4-4	ND												
	F4-1	ND						JB 4/24/12						
B	F4-4	ND												
	E4-4	ND												
	C4-4	ND												
	E4-6	ND												
	C4-6	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	720
Date received by lab	4/23/12
Lab Job Number	234314
Lab Sample Number:	878217

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/24/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-1	ND												
	E4-4	ND			Prep A		~50% intact			10-15% debris				
	E4-1	ND			Prep B		70% intact			10-15% debris				
	C4-4	ND						JB	4/24/12					
	C4-1	ND												
B	H3-4	ND												
	G3-4	ND												
	F3-4	ND												
	E3-4	ND												
	C3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched fllter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm2} = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening